NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD

POND SEALING OR LINING

CATIONIC EMULSION-WATERBORNE SEALANT

(No.)
CODE 521D

DEFINITION

Installing a fixed lining of impervious material or treating the soil in a pond mechanically or chemically to impede or prevent excessive water loss.

PURPOSE

To reduce seepage losses in ponds to an acceptable level.

CONDITIONS WHERE PRACTICE APPLIES

Where water loss from a pond through leakage is, or will be, of such proportion as to prevent the pond from fulfilling its planned purpose, or where leakage can damage land and crops or can cause waste of water or environmental problems, and where a seepage reduction of 70 to 95 percent can adequately solve the leakage problem.

CRITERIA

Ponds to be lined shall be constructed to meet SCS standards for Irrigation Pits or Regulating Reservoirs (552), Irrigation Storage Reservoirs (436), Ponds (378), Waste Treatment Lagoons (359), Waste Storage Ponds (425), or Wildlife Watering Facilities (648), as appropriate.

Soil properties. For electrochemical sealing, soils (in the surface 2 in.) shall have proprieties approximating the USDA textural soil classification for:

1. Very fine sands, fine sands, medium sands, coarse sands, and very coarse sands.
2. Nonexpansive loamy sand and sandy loam.

If the soil is relatively uniform throughout the entire pond, the seepage rate before sealing shall exceed 1 ft/day, measured vertically. If isolated sections in an area are suspected of causing most of the seepage loss, the seepage rate in the area before sealing shall exceed 1 ft/day.

The minimum rate of application shall be based on small-scale field tests with infiltration cylinders unless sufficient data are available on the field performance of previously tested soils that are similar in texture and chemical properties to the soil to be sealed.

In the absence of field test results for the soils to be sealed, the minimum application shall be 1 gal/yd^2.

CONSIDERATIONS

Water Quantity

1. Effects upon components of the water budget, especially effects on volumes and rates of runoff, infiltration, evaporation, transpiration, deep percolation, and ground water recharge.
2. Variability of the practice's effects caused by seasonal or climatic changes.
3. Effects on downstream flows or aquifers that would affect other water uses or users.
4. Effects on the volume of downstream flow to prohibit undesirable environmental, social or economic effects.
5. Potential use for water management to conserve water.

Water Quality

1. Effects on the movement of sediment, pathogens, and soluble substances carried by seepage water.

2. Effects on this practice on the trapping of nutrients and pesticides and altering their effect on surface and ground water quality.

3. Effects on the visual quality of the pool and downstream water resources.

4. Short-term and construction-related effects on the quality of the pool and downstream water.

5. Effects of water level control on the salinity of soils, soil water, or downstream water.

6. Effects of water level control on the temperatures of downstream waters to prevent undesired effects on aquatic and wildlife communities.

7. Effects on wetlands or water-related wildlife habitats.

PLANS AND SPECIFICATIONS

Plans and specifications for sealing ponds with cationic emulsion-waterborne sealant shall be in keeping with this standard and shall describe the requirements for applying the practice to achieve its intended purpose.

OPERATION AND MAINTENANCE

An operation and maintenance plan must be prepared for use by the owner or others responsible for operating the system. The plan should provide specific instructions for operating and maintaining the system to insure that it functions properly. The plan should also provide for periodic inspections and prompt repair of eroded or damaged areas.